

IV. Local Management Context

There are multiple tasks involved in installing sidewalks or greenways that can generally be placed into five categories of City responsibility: determination of need, requirement and priority; engineering and design; right-of-way acquisition; construction; and maintenance.

A. Sidewalk and Pedestrian Needs Inventory and the 2004 Pavement Condition Survey

In 1995 –1999, the City of Asheville staff undertook a process of creating a sidewalk inventory, and estimated that there were 132 linear miles of existing sidewalks.¹ Mapping information was developed utilizing information gathered from neighborhood associations and staff field work. This inventory was utilized to identify needed linkages that would improve connectivity and ADA needs to be addressed as part of the 1999 adopted Pedestrian Plan.

The inventory provided valuable a reference tool for City staff to target needs, as well as a database from which maps could be generated but had two flaws. The first is that actual sidewalk segment location and length were not always accurate because the sidewalk location was mapped as an off-set from existing roadway data, as opposed to the plotting of an actual point to indicate the beginning and end of a sidewalk segment through a global positioning system (GPS) unit. This resulted in probable inaccuracies in actual location and length of sidewalk segments. The second is that the database was not easily maintained, and new sidewalks were built either by private developers or the City Public Works Department but not accounted for in the database. This resulted in the sidewalk inventory eventually becoming out-dated.

The Institute for Transportation Research and Education (ITRE) had conducted a pavement condition rating survey (PCR) in 1999 for the City that rated roadways and also needed to be updated. In 2004, City staff designed an approach that combined the pedestrian inventory and PCR update data on existing facilities and problems and establish a geodatabase (a combination of spatial and attribute information displayed in a digital mapping environment in ArcView). Information from citizen volunteers who assessed ADA needs in West Asheville and conducted a walkability assessment in North Asheville were also considered in data collection. Using local expertise to combine the update process for two distinct but related needs (streets and sidewalk inventories), saved on administrative costs and avoided having to contract these services out.

For this project, 463.6 miles of streets within the Asheville Corporate Limits of which 389 miles are city-maintained paved roads, were evaluated. The survey lasted 10 weeks, and an average of 9.3 miles of streets were rated per one 5-hour session. Each street was broken into segments at intersections, and each segment was rated, evaluated and recorded on site by use of a laptop computer, insuring efficiency, accuracy and consistency in data collection. Database fields are designed to record date, activity, width, cost and material of new sidewalk construction projects. Other fields are used to describe sidewalk...

- Presence (yes, no or partial)
- Material (asphalt, brick or concrete)
- Condition (poor, fair, good or excellent) and
- Width (compliant, non-compliant or compliant with obstacles).

For a sidewalk to be ADA compliant, it must be at least 48 inches wide. Obstacles in a sidewalk (such as utility poles, mailboxes, sign posts, fire hydrants, etc.) can temporarily reduce the width of the sidewalk below the required 48 inches.



This concrete sidewalk along Hill Street is un-passable by anyone using a wheelchair, walker, or baby stroller because of the utility pole.

Sidewalk ramp locations are recorded as point features and reported as being compliant or non-compliant. An ADA compliant ramp must meet smoothly with the street surface and have a slope of less than 8%. Factors that cause a ramp to be rated non-compliant are large cracks, obstacles in the ramp, slope greater than 8% and unmanageable differences in street and sidewalk height for a wheelchair dependent person.



This non-compliant ramp at Merrimon and Larchmont has a 3" to 4" lip between the roadway and the ramp surface.

In the PCR, staff identified 151.75 linear miles of existing sidewalk, indicating that since the last 1999 Pedestrian Plan was adopted, about 20 linear miles of sidewalk has been installed, and 108 linear miles of identified needed linkages remain from the 1999 inventory. The survey also found:

- 11.63 miles of sidewalk were rated "Poor" in condition;
- 2.86 miles of sidewalk were of "Non-Compliant" width;
- 36.64 miles were "Compliant with Obstacles;" and that
- 226 out of 1519 wheelchair ramps were non-compliant.



This sidewalk along Woodfin Street is in excellent condition and wide enough to be compliant even as it accommodates a mail box.

NCDOT and ITRE recommend that the PCR be updated every 2 years. With the geodatabase in place, the update process should take less time, and road and sidewalk improvements and construction can be recorded as they are implemented. This will allow City Engineering and Public Works Department staff to keep roadway and pedestrian infrastructure information up to date on a regular basis. Ideally, a line shapefile will be completed that accurately represents the actual location of new sidewalks rather than their relative location to the street network as in the original inventory. Once complete, map layers may be generated to show areas in the city where continuous pedestrian and wheelchair access is available.

B. Asheville Sidewalk Regulations and Fee-in-Lieu Program

In the UDO, Chapter 7, Section 11-7, the City of Asheville requires sidewalks in new development (Ordinance Attached):

“to insure that adequate provision of transportation and other public requirements, the promotion of health, safety and the general welfare and the coordination of streets and other public facilities are considered in the development and use of property and that development and use of property are done in accordance with an adopted City of Asheville transportation or corridor plan, including but not limited to such plans as the Transportation Improvement Program (TIP), greenway, small area, pedestrian thoroughfare plan.”

The UDO regulations are subject to change at the direction of City Council, but current requirements apply in new construction and renovations, or additions and renovations to existing structures when the project is a:

- (1) Residential development of 20 or more single family homes;
- (2) Multi-family residential development of 10 units or more;
- (3) New office, institutional, commercial, and industrial development;
- (4) Existing office, institutional, commercial, and industrial development additions or expansions to structures where expansion results in an increase of more than 50 percent value of the structure.
- (5) New street, improved street or extension to streets.

Where a developer requests it and certain conditions exist, a payment of a fee *“in lieu”*, or, *“instead of”*, actual construction may also be acceptable. Fee in lieu of construction may be granted when the sidewalk or other pedestrian facility is:

- (1) Not identified in the Pedestrian Thoroughfare Plan Map as a needed pedestrian linkage.
- (2) Proposed to be constructed within an existing right-of-way where sufficient right-of-way or easement width does not exist or cannot be dedicated to build the sidewalk.
- (3) Identified on the Pedestrian Plan Map but is part of an NCDOT or city project that includes sidewalks already.

The City Engineer or her designee may also require the construction of a new sidewalk if the:

- (1) Applicable project area, including street frontage, is identified as a needed pedestrian linkage in an adopted City transportation or corridor plan, including but not limited to such plans as the Transportation Improvement Program (TIP), greenway, small area, pedestrian thoroughfare plans; OR
- (2) Current or projected (within five years) average daily traffic count (ADT) for the street is 300 vehicles per day or more as determined by the City Traffic Engineer. Traffic generated from the applicable project or any additions to the applicable project will be included in calculating the ADT for this condition.

If a sidewalk is not required or fee-in-lieu of construction is paid instead of construction, then the developer must still provide a recorded easement, and where practical grade for, the future development of the sidewalk depending on the judgment of the City Engineer or his/her designee. The City Engineer has flexibility to work with developers to respond to needs, feasibility and other context issues of any particular site. This could include consideration for wheelchair or transit access, public safety, and/or planning goals for the area.

All fees collected under the fee-in-lieu of sidewalk construction program are accounted for separately from other City revenue and set aside for the construction or rehabilitation of sidewalks or other pedestrian improvements - in the same area as the development that generated the fee is located. In no case may the fee in lieu of constructing the sidewalk exceed 15 percent of the total cost of the approved project. (Total cost of the project includes all construction costs associated with the improvement as approved by the City of Asheville).

Fees should be expended within a reasonable amount of time after completion of the development (not to exceed five years) or returned to the developer. Fee-in-lieu of construction will not apply to any level three project unless specifically approved by the City Engineer or her designee.

The Ordinance also provides for an appeals process if a developer wishes to appeal the ruling of the City Engineer. This requires the developer to provide a letter within 10 working days of receiving the written notice of the City engineer/designee. The appeal goes to a three-member committee of the City manager or designee plus two other City department directors, who may affirm, reverse, or amend the ruling of the city Engineer or designee.

The City of Asheville staff must reassess the current fee *in-lieu* level as well as constantly work to match funding and resources to appropriate needs and projects and to keep its requests and projects up to date. Additionally, new and creative sources of funding as well as more opportunities for local participation and for public-private partnerships should be explored (see the recommendations section of this report). Since the program was instituted in 2000, it has raised \$160,171.10 for new sidewalk construction.

Note: Please refer to UDO for current ordinance regulations at: <http://www.ashevillenc.gov/> > Features > Ordinances.

C. The Standards and Specifications Manual

All sidewalks that are required must be constructed in accordance with the City of Asheville Standard Specifications and Details Manual. This may be found on the City's website at <http://www.ashevillenc.gov/engineer/specs.htm> or may be purchased through the City Engineering Department. The purpose of the manual is to provide a resource for design and construction within the City of Asheville and its extraterritorial zoning jurisdictions (ETJ).

The standards "shall apply to all construction on public property, rights of way and private property to ensure safety and functionality of systems serving residents and/or connecting to systems maintained by the City of Asheville." Guidelines for sidewalks are included under the "Streets" section. The manual is updated periodically to be consistent with "best management practices" and emerging technology and design innovations.

D. Using the Pedestrian Plan Regulatory Map

In addition to area-specific plans that influence how and where sidewalks are installed, the City Engineer must rely on the Pedestrian Plan Map. It identifies "needed linkages" or gaps in the pedestrian network that should be addressed in order to accommodate future growth and ensure connectivity and safety for pedestrians. Wherever there is an identified "needed linkage," developers must install sidewalk and cannot request the *fee in lieu* option.

The Pedestrian Plan Map from 1999 has been updated utilizing the dated collected from citizen and staff input, the 2025 Plan and the 2004 PCR, and is included in this document in the Maps Section (Chapter 9).

E. Other Sidewalk Related Policies

In addition to UDO Requirements and the *fee in lieu* option, the City has other established policies which directly or indirectly relate to sidewalks and which are all designed to promote a safe and accessible pedestrian environment. These include:

- Process to address sidewalk reconstruction or repair in cases of a “vaulted sidewalk.” These are sidewalks that were built over basement space originally designed for delivery and storage of coal and that are common in the Asheville downtown district (CBD).
- Property owner participation in 50% of cost for replacing sidewalks that are not currently scheduled for replacement or reconstruction.
- Use of sidewalks by businesses for the purposes of outdoor dining, advertisement, or commerce.
- Street and driveway access and the need for consideration of the pedestrian environment.
- Procedures for traffic calming requests that include local support and contribution, site specific design and engineering, and feedback before construction.
- Flexibility in Setback Requirements to promote pedestrian facilities.

For information on sidewalk requirements, the Standards and Specifications Manual, and permitting citizens may contact:

- City of Asheville Engineering Department (828) 259-5943,
- City of Asheville Permit Office (828) 259-5846.

For information on sidewalk access and driveway requirements along State Roadways, citizens may contact:

- NCDOT Division 13 Office (828) 251-6171

F. City Funded Sidewalk Construction and Costs

Asheville also invests directly in sidewalks through annual budgeting. This allows staff to respond to more customer (citizen) requests and needs, often addressing issues that are ineligible for grants and/or pre-date the Sidewalk Ordinance, ADA requirements, the transit system, or community construction of schools, parks, and other pedestrian traffic generators. It also allows the City to be proactive and timely in meeting community goals for needed linkages and safety.

Annually, the City has provided an allocation specifically for the construction and maintenance of sidewalks, collected fees as part of the “fee-in-lieu” option, and either dedicated Public Works crews to construct projects or contracted with private firms to get the work done. Since 1999, these efforts have installed 154,109 square feet of new or upgraded sidewalk and improved, replaced, or installed 220 sidewalk ramps to meet ADA requirements. Projects were identified through the 1999 Plan, requested by citizens, or completed in conjunction with other projects. In the FY2004-2005 budget, the City:

- Allocated \$200,000 directly to sidewalk construction and maintenance,
- Allocated \$91,300 to address street and sidewalk needs in recently annexed areas of Enka and Sweeten Creek Road, and
- Allocated \$81,000 to established a new 5-person crew dedicated to sidewalk projects.

The new sidewalk crew is expected not only to increase the rate at which the Pedestrian Plan is implemented, but also to save money, by decreasing the amount of work that the City must contract out. A comparison study of past sidewalk projects show a significant cost-benefit to a dedicated sidewalk crew, enabling the City to build more with less.

SIDEWALK CONSTRUCTION COSTS: Internal Crew vs. Contracted

Internal Projects	Square Feet	Total Cost (including labor & benefits)	Contracted Projects	Square Feet	Total Cost
Mt. Claire	12,540	\$78,090.80	Cumberland	4,805	\$90,085.19
College	4,750	\$21,803.09	Tunnel	7,700	\$75,612.24
Colonial	10,215	\$41,271.13	Haywood	2,800	\$66,000
Central	11,054	\$54,692.52	State	10,415	\$114,970
Haywood	6,052	\$37,038.15	Sand Hill	11,750	\$97,963.15
S. Lexington	10,261	\$60,624.97	Chestnut Phase 1	15,758	\$87,694.28
S. Market	3,448	\$18,474.93	Chestnut Phase 2	17,420	\$101,033.32
Edgewood	8,934	\$30,991.70			
McCormick	7,033	\$45,656.41			
Druid	3,584	\$24,603.48			
Marcellus	4,990	\$25,507.07			
TOTAL	83,461	\$438,754.25	TOTAL	70,648	\$543,363.265
Avg. cost per square foot to install sidewalk	\$5.26		Avg. cost per square foot for contractor to install sidewalk	\$8.96	

Conclusion

Based on the above factors, internal crews can install more sidewalks at a cheaper per square foot cost. The above table shows that internal crews placed the equivalent of 3.16 miles of 5-foot wide sidewalk, while the contracted amount is equivalent to 2.67 miles. Internal crews placed 19% more sidewalk at a 20% lower cost. (Note: City figures for Total Costs represented above do not include overhead and indirect costs (this can add 25-30% to the construction cost), however, the price per square foot comparison reflects actual construction costs and is still less expensive when done by an internal City crew)

Source: City of Asheville Public Works Department, 2004

Citizens are often surprised at the cost for installing sidewalks or have difficulty understanding why requests cannot be met immediately. **Feasibility, cost and construction process** impact the rate and success of City projects.

Before the City can invest in construction, a proposed sidewalk must be evaluated for its **feasibility**, which includes several factors.

- Geographic limitations such as topography, drainage, or any physical barriers (rock-outcroppings, buildings) can place constraints on how and where sidewalks may be built, and, in Asheville, many areas are characterized by steep slopes and mountainous terrain that puts constraints on how and where sidewalks may be built.
- Utility easements such as water or sewer lines and power poles may need to be relocated, designed around, or repaired/replaced with construction projects. The City must work closely to identify opportunities for relocating utility poles out of sidewalks as they are replaced and to ensure that new utility poles are not placed into existing sidewalks in such a way as to compromise ADA compliance and usability.
- Right-of-way availability may vary, but often on our mountain roads, right-of-way comes to the edge of pavement, requiring the City or NCDOT to negotiate with multiple, individual land-owners to add sidewalk. On State roads, where right-of-way is not clear, only 5 feet from the edge of pavement is considered within State right-of-way and anything beyond that must be negotiated. Depending on the landowners involved, the City may or may not be able to acquire the space needed to build facilities without expending additional funds.

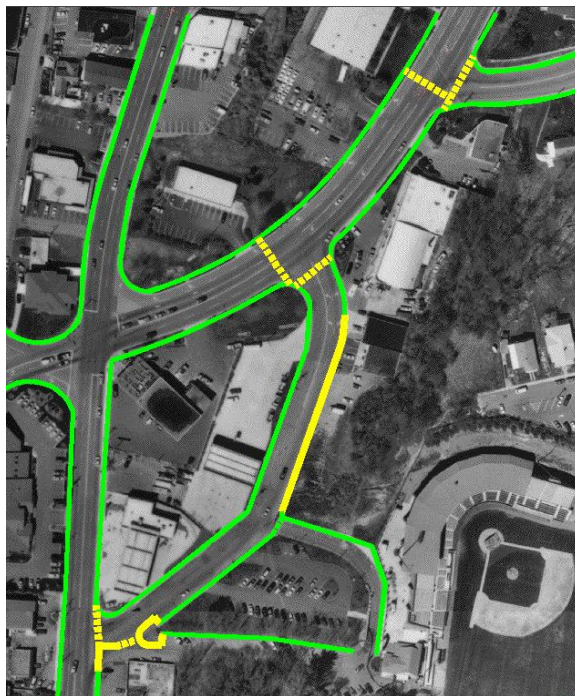
Projects are also evaluated for their **costs in relation to the City's budget**. Pedestrian facility work is allocated into 2 major budget categories: the 662 Fund is the *capital* budget for sidewalk construction and maintenance; the 110 Fund is the Street Division *operating* fund for non-sidewalk repairs and installation of related facilities (ADA ramps, curbs, drains, etc.).

Sidewalks contain four key sequential **steps of construction**:

1. Digging out- removing old sidewalk material on replacement projects and establishing and compacting new sub-base on new installation projects (accounts for 20% of projects time)
2. Forming- the actual concrete material is placed in a liquid state requiring that the limits of the material be established with rigid material of the proper height (accounts for 40% of projects time)
3. Finishing- the liquid concrete must be placed and smoothed (typically by hand on sidewalk projects) to its proper finished grade and slope, including the installation of control and expansion joints to control future cracking and stress relief (accounts for 30% of projects time)
4. Backfilling- the concrete forms (which are reusable) must be removed and the surrounding grade brought up to the new grade of the sidewalk. This is to prevent erosion onto the sidewalk and/or saturation of the sub-base underneath (accounts for 30% of projects time).

Even with these considerations, the City has made significant headway in developing the "needed linkages" identified in the 1999 Pedestrian Plan and will move forward with this update, the new sidewalk crew, and other efforts to ensure continued progress in the development of a safe, accessible and connected infrastructure.

The **example of McCormick Place** illustrates the City's comprehensive approach to sidewalk construction. This roadway connected the major thoroughfares of Charlotte Street and US25/Biltmore Avenue and was the entrance to McCormick stadium, home of the Asheville Tourist's Minor League Baseball team and source of significant pedestrian traffic during games days. The City received several calls regarding accessibility and pedestrian safety in the area. The city traffic engineer developed designs that connected to the existing pedestrian network, improved the safety of intersections, and accommodated the existing environmental and design constraints, including utility poles. The project required the City to obtain additional right-of-way from a private landowner, and was built by the city Public Works Department.



Green – existing sidewalk before project
Yellow – proposed sidewalk and crossing improvements

Before / After



Previous conditions left pedestrians exposed to cross streets at long distances with no striped crosswalk or traffic control measures. Proposed improvement designs a bulb-out to reduce pedestrian exposure while slowing automobiles down by creating sharper angles for turns.



Before, pedestrians had to walk in the street in front of the stadium, prompting concerns from pedestrians and wheelchair users. As built, the new sidewalk provides accessible route off of the street and behind the utility poles.

CITY SIDEWALK PROJECT LOCATIONS SINCE THE 1999 PEDESTRIAN PLAN BY FISCAL YEAR

1999

Furman Avenue
Monroe Place
Clayton Street phase 1
Biltmore Building
Cumberland Avenue (brick)

2000

Clayton Street phase 2
Sate Street phase 1
Martindale Road (curb)
Wood Avenue
Grove Street
Marjorie Street

2001

Sate Street phase 2
Battery Park
Pritchard Park
Mount Claire
Woodward
Sand Hill Road
Broadway
College Street

2002

Colonial Place
Grove Arcade
Kings Wood Place
Windsor Road
Lodge Street
Central Avenue

2003

South Lexington
Chestnut Street phase 1
Haywood Street
Cherry Street
Richmond Street
South Market
Druid Drive
Chester Place
Blair Drive
Houghton Place
Edgewood Road phase 1
McCormick Place

2004

East Chestnut Street phase 2
Mt Vernon Place
Mt Vernon Circle
Patton Avenue between Haywood and Parkwood
Colonial Place

2005 (in process or proposed so far)

Kimberly Avenue
Claredon Avenue
Cumberland Circle
Dortch Street
Patton Avenue
Fairview Road
Trinity Chapel
New Haw Creek Road and Avon Road
Beaverdam
Merrimon Avenue

STATUS OF “CRITICAL” PEDESTRIAN NEEDS IDENTIFIED IN THE 1999 INVENTORY AND PEDESTRIAN PLAN:

New/Existing Facilities Identified in 1999:

Work completed / Status in 2004:

CENTRAL ASHEVILLE

Hilliard Road

Several segments completed by Public Works, working to acquire easement or property for Asheland to Clingman segment.

Broadway

Sidewalks completed from 240 to Weaver Blvd, vaulted sidewalks from Woodfin to Walnut being repaired in 2004.

EAST ASHEVILLE

Beverly Road/E. Hawthorne Road

Trail/sidewalk connection from E. Hawthorne to Gashes Creek, along Swannanoa River Road, and connecting to Azalea Park is under development. Sidewalk along E. Hawthorne however has not been developed any further.

Fairview Road

Segment from Sweeten Creek to Westview will be constructed in conjunction with new waterline, scheduled for 04-05

New Haw Creek Road

TIP E-4814 for FFY 04 and City Enhancement Application for '04

Tunnel Road

Working with NCDOT on design for possible sidewalk extension in 05-06 and improved pedestrian crossing signals at all stop lights.

NORTH ASHEVILLE

Beaverdam Road

Design submitted to NCDOT for 2004-05 project from Merrimon to Kimberly Ave.

Edgewood Road

Segment from University Heights to Barnard completed by Public Works

Merrimon Avenue

Key segments on the Priority Needs List (PNL), some upgrades by new development and public works.

SOUTH ASHEVILLE

Biltmore Village-All Souls Crescent

Sidewalks required for new development; Various City installed safety improvements.

Hendersonville Road

On Priority Needs List for MPO, some segments completed by either new development or public works. Asheville Transit improving crosswalks in connection with transit stops.

Rock Hill Road

Still under consideration

Springside Drive/Overlook Road

Still under consideration

Swannanoa River Road

TIP segments E-4406 and Riverway Design on Priority Needs List

Sweeten Creek Road

TIP U-2808 as multi-lane facility in past years, but does not yet include sidewalks.

WEST ASHEVILLE

Patton Avenue

Funded for construction FY04, north side from Regent's Park to Leicester Hwy.

North Louisiana Avenue

On Priority Needs List

Sand Hill/Olney

Segment from Bear Creek to Shelborne completed by Public Works

Brevard Road (191)

On Priority Needs List

Haywood Road

City installed new sidewalks on critical segments

G. Signals

Traffic signals and how they are phased or timed in coordination with each other greatly effect pedestrian safety. The State Division 13 Office is responsible for signals along State roadways such as on Merrimon and Hendersonville Road, and others, and the City Traffic Engineering staff is responsible for signals along City roadways unless under agreement with NCDOT.

City and State Traffic Engineers determine need for pedestrian signals based on the Manual on Uniform Traffic Control Devices (MUTCD) Guidelines. The MUTCD is produced by the Federal Highway Administration and contains standards for traffic control devices that regulate, warn, and guide road users in all 50 States to optimize traffic performance, promote uniformity nationwide, and help improve safety. The MUTCD lays out criteria or “warrants” – including pedestrian traffic volume and proximity to schools - for installation of pedestrian signals. (See Section 4C – 4E on warrants and requirements for pedestrians and at: mutcd.fhwa.dot.gov/HTM/2003/part4/). However, because of our rapid development, pedestrian signals should be installed at all intersections where there are sidewalks, even if they are not yet warranted by MUTCD criteria.

Traffic engineers can also design signals to address particular situations. To provide a safer route to and from the Industries for the Blind, Inc. and the Asheville Transit Transfer Station, City staff installed a device that emits audible cues for the visually impaired along Patton at South French Broad and Asheland.

They also improved phasing and installed a “lead pedestrian interval” (LPI) to allow more time for passage along downtown crosswalks with high pedestrian volumes.

The City recently received a federal earmark allocation as the City’s match to State funds to upgrade the entire local signal system – a \$10 million project. This upgrade will replace outdated equipment as well as install a state of the art program to coordinate and manage traffic lights through a unified and comprehensive system. As this upgrade moves forward, all signalized intersections should be assessed for their pedestrian safety needs by City traffic engineering. Pedestrian specific signals (“ped-heads”) and/or traffic light phasing that accommodates those on foot should be installed at key intersections identified by the Engineering staff.



Lead Pedestrian Interval (LPI) phasing allows pedestrians additional time to cross while stopping automobile traffic in all directions.

Traffic Lights Maintained by City of Asheville: Updated Oct. 2003

Signals

1. Asheland at Bus Depot
2. Biltmore Ave. at Aston St.
3. Biltmore Ave. at Hilliard Ave.
4. Biltmore Ave. at Short Coxe Ave.
5. Biltmore Ave at Southside/Charlotte
6. Broadway at College St.
7. Broadway at Walnut St.
8. Broadway at Woodfin/Hiawassee
9. Charlotte St. at Chestnut
10. Charlotte St. at College St.
11. Charlotte St. at Hillside St.
12. College St. at Haywood St
13. College St. at Lexington Ave.
14. College St. at Market St.
15. College St. at Oak/Valley St.
16. College St. at Spruce St.
17. Coxe Ave. at Aston St./Bus Depot
18. Deaverview Rd. at N. Bear Creek Rd.
19. Fairview Rd. at Cedar St. / Liberty St. / Fire Sta.#9
(pre-empt button in Fire Sta.)
20. Fairview Rd. at Glendale Ave.
21. Fairview Rd. at Oteora / Baldwin
22. Flint St. at Cherry St.
23. Flint St. at Hiawassee St.
24. Flint St. at Starnes Ave.
25. Hanover St. at State St.
26. Haywood St. at Battery Park
27. Haywood St. at Flint St./Page Ave.
28. Haywood St. at O'Henry/I-240
29. Hendersonville Rd. at Caribou / Fire Sta. #5 (City
Signal on DOT Highway) (pre-empt in Fire Sta.)
30. Hilliard Ave. at Asheland Ave.
31. Hilliard Ave. at Church St.
32. Hilliard Ave at Clingman Ave.
33. Hilliard Ave. at Coxe Ave.
34. Hilliard Ave. at S. French Broad Ave.
35. Hilliard Ave. at S. Lexington Ave.
36. Kimberly Ave. at Evelyn Place / Edwin
37. Lexington Ave. at Hiawassee St.
38. Lexington Ave. at Walnut St.
39. Market St. at SE Pack Square
40. Market St. at Walnut St.
41. Martin Luther King Dr. at Hazzard St.
42. Montford Ave. at Haywood St.
43. Montford Ave. at I-240 ramps/Cherry St./Hill St.
44. Montford Ave. at W. Chestnut St.
45. Patton Ave. at Church St.
46. Patton Ave at Clingman Ave.
47. Patton Ave at Coxe Ave.
48. Patton Ave. at French Broad Ave.
49. Patton Ave at Haywood St.
50. Patton Ave. at I-240/19-23 Ramp
51. Patton Ave. at Lexington Ave.
52. Patton Ave at Otis St.
53. Patton Ave at Pack Square/ Biltmore/ Pack Place
54. Riverside Dr. at W. Haywood St. / Craven / Smith Br.
55. Southside Ave. at Short Coxe/ Coxe
56. Tunnel Rd. at Fire Sta. #8 (City Signal on DOT
Highway) (pre-empt button in Fire Sta.)
57. Victoria Rd. at Memorial Mission Hospital Drive
58. Woodfin at Market/I-240 Ramp

Flashers

59. Church and Patton (Pedestrian Flasher)
60. Aston St. at S. Lexington Ave. (Flasher)
61. College St. near Oak St. (Ped. Flasher) East.
62. College St. near Spruce St. (Ped. Flasher) West.
63. Crayton Rd. at Raleigh / Merchant / Liberty (Flasher)
64. Florida Ave. at Downing St. (Flasher)
65. Glendale at McArthur (Flasher)
66. Haywood Rd. at Balsam & Parkwood / Fire Station
#6 (Flasher) (actuator button in Fire Sta.)
67. Haywood Rd. at Lyndale & Clinton / Fire Station #6
(Flasher) (actuator button in Fire Sta.)
68. Hillside St. at Mount Clare Ave. (Flasher)
69. Hunt Hill at Edge Hill (Flasher)
70. Kenilworth Rd. at Beaucatcher Rd. (Flasher)
71. Liberty St. at Broad St. (Flasher)
72. Liberty St. at Chestnut St. (Flasher)
73. Liberty St. near Oakley School (School Flasher)
74. Louisiana at Oregon / Fire Sta. #3 (north end)
(Flasher) (pre-empt button in Fire Sta.)
75. Louisiana at Oregon/ Fire Sta. #3 (south end)
(Flasher) (pre-empt button in Fire Sta.)
76. Merrimon Ave. North of Claxton School or Hillside St.
(School Flasher)
77. Merrimon Ave. South of Claxton School or Hillside
St. (School Flasher)
78. Montford Ave. between Hill & Chestnut (N) (School
Flasher)
79. Montford Ave. between Hill & Chestnut (S) (School
Flasher)
80. S. French Broad at Bartlett St. (Flasher)
81. School Rd. near Oteora Blvd. (School Flasher)
82. School Rd. at Raleigh Rd. (Flasher)
83. Victoria Rd. at Asheville High Dr. (NB) (School
Flasher)
84. Victoria Rd. at Asheville High Dr. (SB) (School
Flasher)
85. W. Chestnut St. at Cumberland Ave. (Flasher)
86. W. Chestnut at Flint St. (Flasher)
87. Westwood Pl. at Richland / Ridgeway (Flasher)
88. Deaverview at Milkco (Flasher)

H. Crosswalks and Enforcement

As with signals, the City is responsible for installing and maintaining crosswalks on local roads according to established standards and specifications and must work cooperatively with NCDOT when it comes to State Roads. Crosswalks are important pedestrian facilities and traffic control devices but are often taken for granted or overlooked, despite their impact on how pedestrians and motorists view a pedestrian crossing area. There are several factors that contribute to crosswalk effectiveness: visibility, location, design, appropriateness to the situation and enforcement.

Cross streets and intersections can be barriers to pedestrians when there is no or inadequate designation indicating where to cross. If a crosswalk is worn away, difficult to see or does not exist, then pedestrians are not encouraged to cross and motorists are not given a visual cue or warning to watch for pedestrians. A marked crosswalk includes the use of pavement markings and either signs or signals that are noticeable to motorists and pedestrians. Crosswalks should be:

- **Coordinated with signals** or signs for maximum effectiveness,
- **Consistent so that they are recognizable** throughout the City, and
- **Visible.**

Twin lines for pedestrian crossings are not very visible and can be confused with other pavement markings. Zebra or other patterned, or stamped asphalt such as *Streetprint* markings are recommended generally and especially where there are no signal controls or at busy intersections.

I suggest an emphasis on striping as a consistent treatment for most crossings.... The city has many intersections in the downtown area, the West Asheville Haywood commercial corridor, and other “main street” areas that have bare-bones—or no—pedestrian treatments. This creates an unsafe situation for pedestrians and tells drivers that pedestrians are not to be considered. Many cities (including downtown Hendersonville) consistently and uniformly treat all intersections in an entire district (not just one downtown street) with pedestrian crossings that are marked with very wide, bold stripes.

The key words are: consistent and uniform. When these treatments are used throughout an entire district, the message to drivers passing through any part of the district is very clear: pedestrians are a part of this area and they are to be accommodated. I feel this approach creates a vastly safer, predictable, reassuring environment than Asheville’s current piecemeal approach.

- RussellCate, citizen

Patterned or “zebra-striped” crosswalks are more visible to motorists and clearly designate the pedestrian crossing area.



Twin lines are not readily visible to motorists and often wear away, leaving little to no indication of a pedestrian crossing area.

In addition to visibility, **location and design** of crosswalks can improve safety. Crosswalks located a mid-block should only be considered when there is enough pedestrian traffic, and motorists' speed is slow enough to warrant the crossing; while crosswalks located at corners – especially in conjunction with traffic signals – are more expected by motorists. Additionally “bulb-outs” or extensions of the sidewalk at a crosswalk, or small islands mid-crossing, reduce “pedestrian exposure” or the time/distance the pedestrian is in the roadway.

Unjustified, poorly located, or poorly designed crosswalks can cause an increased expense to taxpayers for installation and maintenance that may not be justified in terms of improved public safety. The City's Transportation Services Division must therefore be very intentional in the location, design, and justification for crosswalks with awareness of how it may function within the given situation. For example, the State of Arizona has a “Crosswalk Policy” for installation that enumerates advantages and disadvantages that are just as applicable to the Asheville environment:

A) Advantages

1. May help pedestrians orient themselves and find their way across complex intersections.
2. May help show pedestrians the shortest route across traffic.
3. May help show pedestrians the route with the least exposure to vehicular traffic and traffic conflicts.
4. May help position pedestrians where they can be seen best by oncoming traffic.
5. May help utilize the presence of luminaires to improve pedestrian nighttime safety.
6. May help channelize and limit pedestrian traffic to specific locations.

7. May aid in enforcing pedestrian crossing regulations.
8. May act, in a limited manner, as a warning device and reminder to drivers that this is a location where pedestrian conflicts can be expected.

B) Disadvantages

1. May cause pedestrians to have a false sense of security and to place themselves in a hazardous position with respect to vehicular traffic.
2. May cause the pedestrian to think that the driver can and will stop in all cases, even when it is impossible to do so.
3. May cause a greater number of rear-end and associated collisions due to pedestrians not waiting for gaps in traffic.
4. May cause an increase in fatal and serious injury accidents.
5. May cause a disrespect for all pedestrian regulations and traffic controls.

Marked crosswalks should give the pedestrian the right-of-way and be **enforced consistently**. Lack of enforcement results in a lack of consistency in behavior – just as there may be no ramification for motorists who drive into the crosswalk area inappropriately, there may be no ramifications for pedestrians who jay-walk or cross against the light.

“I love that the city has been building more pedestrian crosswalks; I hate that motorists do not respect them. In Europe, cars are ticketed if they drive through a crosswalk when a pedestrian is waiting to cross. I often wait for several minutes to cross both Gracelyn and Ottari while holding the hands of two small children.”

-Anne Fitton, citizen

Under North Carolina law, Chapter 20 of the North Carolina General Statutes, pedestrians have the right of way at all intersections and driveways. However, also according to the law, pedestrians must act responsibly, using pedestrian signals where they are available. When crossing the road at any other point than a marked or unmarked crosswalk or when walking along or upon a highway, a pedestrian has a statutory duty to yield the right of way to all vehicles on the roadway. It is the duty of pedestrians to look before starting across a highway, and in the exercise of reasonable care for their own safety, to keep a timely lookout for approaching motor vehicle traffic. On roadways where there is no sidewalk, pedestrians should always walk facing traffic.

These laws should be enforced at the local level, and the public should be educated so that motorists and pedestrians alike can predict each others' behavior in crossing situations and that there are common and consistent expectations for how pedestrians and motorists interact when they share roadway space. For this to happen, there must be an increase in awareness at both the Police Department and public levels.

To assist in this effort, The NCDOT Division of Bicycle and Pedestrian Transportation funded a study on pedestrian issues, including school zone safety, and decided to establish a consistent training program for law enforcement officers responsible for school crossing guards. Under North Carolina law ([NCGS 20-114.1](#)), crossing guards are considered traffic control officers and are, therefore, subject to the same training requirements as other traffic control officers. Locally, the Asheville Bicycle and Pedestrian Task Force and Healthy Buncombe are working to promote awareness through public education efforts, televised public service announcements, and pedestrian safety education in schools.

Unfortunately though, no matter how much public education and enforcement is provided, pedestrians must always be aware and “walk defensively” when it comes to sharing road space or crossing roadways with cars. The Federal Highway Administration suggests these 5 “Crossing Rules” for pedestrians:

1. Always use a marked crosswalk when one is available. The bright, white lines of a crosswalk remind motorists to look out for pedestrians.
2. Stop at the curb, edge of road, corner or parked vehicle before proceeding across.
3. **Look left – right – left** and if it's clear begin crossing.
4. Continue to check for traffic in all directions, especially for vehicles turning “**right on red.**”
5. If there is traffic, make eye contact with the drivers so they see you, understand your intention, and stop before you start to cross.

FHWA provides additional information, safety tips, and publication flyers on its website at:

http://safety.fhwa.dot.gov/programs/ped_bike.htm.



I. Greenways

While sidewalks are constructed in concert with the Pedestrian Thoroughfare Plan and by the combined efforts of City Engineering and Public Works Departments, Greenways are constructed according to the Greenway Master Plan and Update and by the combined efforts of City Engineering and the Parks and Recreation Department. Greenways present their own set of costs and challenges, and City staff must work through a similar process that considers need, physical constraints and design issues, and financial opportunities.

Greenway projects are often eligible for funding through State and Federal sources including the NCDOT Bicycle and Enhancements Programs, the Recreational Trail Program, the Parks and Recreation Trust Fund, and the Land, Water, and Conservation Fund. Local coalitions, businesses, neighborhood associations, or other resources may also be recruited in developing financial resources for trails, and the City Greenway Commission started the Asheville Parks and Greenways Foundation to support local fundraising efforts.

While trail construction costs may vary greatly, the past projects in Asheville have on average cost \$12.00/linear foot for a 10' wide asphalt trail if the City Parks Maintenance staff does the work and \$20.00/linear foot for a 10' wide asphalt trail if a contractor does the work. In past projects, land owners have worked successfully with the City to donate or provide r-o-w for trail construction; however, r-o-w acquisition costs can be a major expense in trail projects.

1. Summary of Completed Greenway Segments:

- French Broad River Park – Phase I, completed 1996; 0.19 mile asphalt trail. Construction Cost = \$15,000 funded by the City of Asheville (COA) in 1992; Maintenance \$4,000/year; Land Value \$34,500.
- French Broad River Park – Phase II, completed 1996; 0.34 miles of asphalt trail. Cost = \$20,000 funded by NC Dept of Water Resources in 1995; Maintenance \$5,000/year; Land Value \$62,000 donated.
- French Broad River Park – Amboy Road, completed 1998; 0.35 mile asphalt trail. Construction cost = \$80,000 funded by NC Dept of Water Resources
- (\$30,000) and the National Trails Program (\$30,000), and COA in 1997; Maintenance \$5000/year; Land Value \$63,500.
- French Broad River Park – Phase IVA, completed 2002; 0.8 mile asphalt trail. Cost = \$70,000 funded by State Parks and Recreation Trust Fund (\$30,000) and the Recreational Trails Program (\$40,000) in 2000. Maintenance \$4,200/year; Land Value \$150,500/year.
- French Broad River Park – Phase IVB, completed 2002; 0.3 mile wood chip and asphalt trail. Cost \$13,000 funded by the Pigeon River Fund in 2000. Maintenance \$2,000/year. Land Value of \$57,000.
- Glenn's Creek – Phase I, completed 1997; 0.5 mile asphalt trail. Cost = \$80,000 funded by COA in 1996. Maintenance \$5,000/year. Land Value \$50,000.
- Glenn's Creek – Phase II, completed 1997; 0.35 mile asphalt trail. Cost = \$225,000 funded by NCDOT. Maintenance \$4,000/year. Land Value \$85,000.
- Richmond Hill Park, completed in 2001; 2 miles of earthen trail. Cost = \$0 – trail was built by volunteers. Maintenance \$5,000/year. Land Value \$22,000.

Total Greenway Development (through September 2003):

Length:	4.83 miles (2.53 asphalt trail and 2.3 of earthen/woodchip trail)
Average Cost per mile developed:	\$100,000 (note: avg cost for 10' wide asphalt trail construction = \$634,000/mile)
Average Annual Maintenance per mile:	\$7,000
City of Asheville Funding to Date:	\$95,000
Outside Funding to Date:	\$388,000
Total Land Value (entirely donated):	\$450,000



Asheville Greenway Commissioner and former Executive Director of the Parks and Greenways Foundation Paula Robbins scouts out a proposed greenway along Rhododendron Creek in West Asheville.



A young roller-blader enjoys the greenway trail in French Broad River Park, Phase I. This Park provided some of the first greenway trails in the City and connects to the larger Park and Greenway system being developed along Amboy Road and the French Broad River.

2. The Wilma Dykeman Riverway Plan:

The Wilma Dykeman RiverWay is a critical transportation and recreational corridor being proposed for the existing street segments adjoining the French Broad and Swannanoa Rivers. It will upgrade 10 miles of roadway, installing adjacent pedestrian and bicycle facilities and transit stops, to create a multi-modal urban parkway. Built out, it will establish multiple connections to existing thoroughfares, transit routes, greenways, parks, and tourist attractions and establish a continuous east/west corridor that will relieve congestion on Interstates 40, 240, and 26, diffusing significant local traffic.

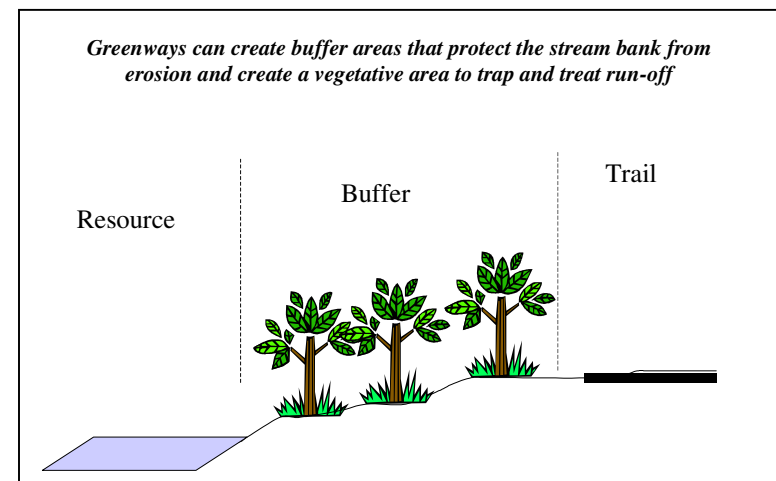
It is a regional priority as endorsed by the French Broad River Metropolitan Planning Organization (FBRMPO) on its Priority Needs List and Congestion Management Systems Report, and is designed to meet multiple needs identified in the MPO's Pedestrian and Bicycle Thoroughfare Plan and City of Asheville Greenway Master Plan, increasing corridor capacity and safety for motorists, bicyclists and pedestrians.

The RiverWay is projected to create over \$100 million in economic redevelopment activity, including Brownfields Program opportunities within the Asheville River District in coordination with a regional Brownfields program. It is also designed to integrate Best Management Practices for stormwater management and to protect and celebrate our region's largest rivers. The City has already invested \$100,000 to develop an overall concept plan and corridor design through a public involvement process that included the public, private and non-profit sectors. This project will create a backbone to the Asheville greenway system, and should be considered in planning and design of new trail segments and funding requests. The City is currently seeking assistance through a Federal "ear-mark" to advance the Riverway Plan through environmental and design stages.

3. Greenways and Stormwater:

Asheville is implementing plans for stormwater run-off as part of the Phase II Regulations of the Federal Clean Water Act. Improvements such as sidewalks, gateways, greenways and urban landscaping, should now be evaluated for their impact on, and opportunity to, manage stormwater. Because much of the Asheville Greenway Master Plan follows the streams and rivers of the French Broad River Watershed, there are several areas where greenway design can incorporate stormwater management features such as bio-swales, wetlands, and riparian buffers to protect the quality of our watershed.

In the Reed Creek Greenway Plan, Landscape Architects from the Parks and Recreation Department created a design that not only meets pedestrian and bicycle transportation goals through connectivity, but which will also assist with stormwater management goals set out in the city's Phase II Application and Plan – including Best Management Practices (BMP's) for stormwater retention and filtration as well as providing citizen education and demonstration site opportunities.



4. Summary of Greenway Projects in Development:

Projects in Process:

Reed Creek Greenway

.85 mile, asphalt trail. City committed \$226,990 in 1998 and has spent \$180,843 to date. Project also received \$21,940 from the Pigeon River Fund in 2001.

French Broad River Greenway Corridor/Riverway

.57 miles of asphalt trail funded by \$203,040 in TEA-21 and \$50,760 in matching City funds in 2001. Project is on-hold while the City secures property.

French Broad River Park- Phase IV (phase 2)

.6 miles of asphalt and mulch trail funded by \$25,000 in the Parks and Recreation Trust fund (PARTF) and \$25,000 in City match in 2003.

FBR Park/Amboy Road to Hominy Creek Park

About 1.2 miles to be funded with \$300,000 in NCDOT Bicycle Program Funds through the TIP. City must cover design and r-o-w acquisition costs.

Clingman Forest Greenway

1.4 mile asphalt trail being developed by Mountain Housing Opportunities with the City.

Azalea Road Park Phase I

Asphalt trail to be built in conjunction with Azalea Park and to connect to Swannanoa River Road and the Beverly Hills Neighborhood. NCDOT has \$400,000 allocated to this project through the TIP.

Swannanoa Greenway- WalMart and Riverbend Sites

Trail to be developed in conjunction with commercial development along Swannanoa River.

Greenway corridors throughout Asheville can serve as extensions of the road network, offering realistic and viable connections between origins and destinations such as work, schools, libraries, parks, shopping areas, and tourist attractions. Greenway-based bikeways and walkways are most effective for certain travel distances. National surveys by the federal Highway Administration have shown that Americans are willing to walk as far as two miles to a destination and bike as far as five miles. It is easily conceivable that destinations can be linked to multiple origins throughout the City with a combination of off-road trails and on-road bicycle and pedestrian facilities.

-City of Asheville Greenway Master Plan, 1998

Other potential greenways under consideration by the Greenways Commission:

- Connection from Hominy Creek Park and Amboy Road Greenway to the WNC Farmer's Market.
- Connection to AB Tech and Asheville High Campus from the Coxe Avenue Transit Center.
- Connection to ("Reed Creek Extension" to Riverside Drive) and pedestrian facility on, the new I-26 bridge.
- Connection from Montford Avenue to the RiverWay corridor.
- How existing and planned greenways will interact and/or become parts of, the Wilma Dykeman RiverWay Plan.